BOSTON PUBLIC LIBRARY
3 9999 06583 484 6
GOV DOC
BRA
3322
H 82
B

ACCOPRESS®
GENUINE PRESSBOARD BINDER
CAT. NO. BG 2507
ACCO
CHICAGO
LONDON.
TORONTO.
MEXICO, D. F.

GOV DOC
BRA
3322

BOSTON PUBLIC LIBRARY

gv 02.154

A PLAN FOR LIVING AREAS IN METROPOLITAN BOSTON

Comprehensive Planning Division
Brigitte Orent
Boston City Planning Board
July 11, 1960

June 30, 1987
1882
B

Digitized by the Internet Archive
in 2010 with funding from
Boston Public Library

http://www.archive.org/details/planforlivingare00bost

LIVING AREAS IN METROPOLITAN BOSTON

I. Their Function p. 1
Their relation to the goals of the General Plan

II. Their Character p. 7

III. The Pattern of Living Areas
A. The Historical Development p. 9
B. The Proposed Pattern for Living Areas p. 16
The relation to other land uses
The internal pattern

IV. The Components p. 25

V. The Plan p. 31
A. The Basis of the Plan
B. Design
C. Description and Capacity

VI. Unresolved Issues p. 35

Tables:

I. Density by Zones from Dock Square, 1800-1950 p. 13
II. Population Distribution, 1800-1950 p. 14
III. Age of Dwelling Units p. 28
IV. Type of Dwelling Units p. 29
V. Characeristics of Existing Residential Areas p. 30
VI. Characteristics of Proposed Living Areas p. 34

STAFF REVIEW: MONDAY, JULY 11, 2 pm, BOARD ROOM

Warning: Don't stumble over typographical errors; author's responsibility.

18

The purpose of this study is to develop a rough plan for living areas in the metropolitan area of Boston for 1980. This metropolitan sketch plan is intended to serve as a framework and guide to the plan for residential areas in the City of Boston.

I. THE FUNCTION OF LIVING AREAS

Living areas have two main functions: 1) to provide shelter and 2) to provide an environment in which individual expression can take place.

Man, along with all animals, needs shelter to carry on some of his basic biological functions: sleeping, mating, and child-raising. This shelter is called home; and living areas are the primary location of homes.[1]

Although it may seem unnecessarily basic to mention man's biological functions, it is these functions which largely determine what is a desirable living environment. Sleep is an unprotected activity, and so the living area must be safe. Sleep requires relatively undisturbed surroundings, and so the living area should not have unpredictable distractions. Children are relatively ignorant and vulnerable creatures: they need protection from situations

1. The primacy of homes is shown in the distribution of prupose of trips to 210 residential blocks in Detroit.

Home-	73% of trips
Work-	4.6 %
Personal business	2.1%
Social-Recretl.	9.3%
Change mode	1.3%
Eat meal	1.8%
Serve passenger	6.2%
Shop	1.3%
School	0.1%

Detroit Metropolitan Area Traffic Study, Part I, 1955 ,Table 21.

whose dangers are beyond their comprehension.

No other land use is as excludsively devoted to consumption as the living area. Almost all other activities are concenned mainly with the production or exchange of ideas or goods. Becaus e little exchange with external agents has to be accommodated , the living area - more than any other place - is where man and his family is able to express his own free will. The absence of outside demands reinforced by the protection afforded by shelter allows man to express himself personally. He can be off guard, do or not do as he pleases. Since home more than any other place allows free expression, it becomes equated with the individual. To outsiders a man's home expresses his habits, income,age, social or ethnic affiliation, etc.

For some people the opportunity to express their individuality in the living area may not be important: people whose identity is firmly established through their professional life (Ted Williams, Mario Lanza) or through their past activities (retired Army generals); or people who need to escape identification (Specs O'Keefe,Gamble XXXXX Ponnambeau).

Surprisingly, each of the goals which has been developed for the general plan supports these two main functions of living areas: to provide shelter and to allow personal expression.

SHELTER

Health and safety. Both the dwelling units and the living area must promote health and physical well being. The dwelling unit should be free of pests, unsanitary conditions, fire hazards; it should have adquate light, air and space for all memebers of the family.

The living area should be free of traffic hazards, gases, smells, noises, dumps, etc.

Beyond these physical elements of safety, a desirable living environment needs psychological safety. For most people the familiar is safe; the unfamiliar is looked upon as unsafe. For physical planning this means that the living area must be an end zone, a destination through which only the residents pass. If the living area has strangers or outsiders constantly traveling through it, it will no longer feel safe and protected for the residents. Psychological safety also means that the habits of your neighborhs must be familiar to you. To surround yourself with people like yourself gives a sense of security. (The successful living areas in Boston are destinations: South Boston, the NOrth End, Beacon Hill, Fairmount. In contrast Roxbury and the South End are corridors rather than end zones. The stable areas also have a fairly homogeneous population.)

Convenience. Although a living area should be a destination, it must also be convenient to places of work, recreation, education. Originally the living area contained all the processes that sustain life - extraction, production, distribution, and consumption. Today these processes tend to be isolated and specialized. If the living area is going to be primarily a residential area, a consumption area, then it must have convenient access to the other facilities which make specialized residential areas possible.

Continuity. To give residents a sense of security the living area should be stable: it should persist through time and it should

resist the encroachments of other land uses. Change is always unsettling. Even if change will improve the environment, the threat of change destroys for the residents the security of familiar surroundings. Continuity also means that the living area is extensive enough to create a substantial and viable environment.

Amenity. Whatever makes the living area pelasant for people is its amenity. It may be privacy and trees and gardens; or it may be lots of similar people and bright lights; or it may be an historical building type. In all cases amenity should create a feeling of harmony in the environment.

PERSONAL EXPRESSION

Choice and Variety. A person identifies not only with his own home but also with the living area in which the dwelling is located. If the living area is to serve as a means of personal expression, a wide variety of living areas and dwelling types must be availalbel to match the preferences of individuals. (Variety in theliving area may exist in all of the elements described in Section II.)

Different kinds of living areas must be availalbe in the metropolitan area. In the local community, variety has less significance, although as the individual's status, habits,etc. change through his life cycle he may want a choice of dwelling types within his own community to meet these changing demands.

Identity. At the same time that a living area should be identifiable, distinct, or even unique, it should also be related to the whole urban area. In fact, only in relation to other living areas can it achieve distinction. (See Section II for elements which can make an area distinct.)

By being distinct and yet well related to the whole city, a living area has meaning. Without meaning, a living area is unlikely to remain stable.

Stimulus. The kind of stimulation which results from change or surprise is not desirable in living areas which should rather be predictable and secure. Because the living environment is protected, it is a place to relax, to "let your hair down", to read, to get acquainted with yourself and your family and your domain, to putter in the garden. With more leisrue time, these amorphous semi-recreational functions of living areas become increasingly important. They are not stimulus in the usual sense; but they are probably the hotbed in which the individual's development, his new ideas and plans are nurtured.

Adaptability. If the living area is to persist through time it must be able to adapt to higher standards of living, technological changes, increasing (or decreasing) populations, etc. Adapting the dwelling structure to new needs is relatively easy, especially if adequate space is at hand, e.g. conversions, construction of a driveway and garage in the back yard, demolition of outhouses and sheds. In contrast, adapting the entire living area to new needs is much more difficult and has not been carried on extensively yet.

Efficiency. Efficiency is the best allocation of resources to achieve goals. In the residential setting, this means that the costs of maintaining the home for the family and the living area for the community must be in proportion to the family's and the community's ability and willingness to pay, compared to other

private and public values (e.g. private: car,vacation,food; public: education,health services, recreation programs.) An efficient living area is one in which many of the person's preferences can be satisfied simultaneously - for example, nearness to work, usable open space, lots of like-minded neighbors.

What do these goals indicate for the physical pattern of living areas ?

The design implication of the first function of living areas - to provide shelter - are fairly clear. For instance, the living area must be a destination; it must be protected from the dynamic and intruding forces in the urban area. The living area, and the dwellings in it, must be able to endure through the years and adapt to changing demands.

The design implication of the second function - to provide opportunity for personal expression - are much less obvious. For lack of clear direction in this respect, planners often hide behind the cloak of "variety" and"choice" and thereby overlook the many preferences which individuals hold in common. Today almost everyone wants:

1) ample indoor space - elbowroom.
2) private outdoor space in which to do as he pleases.
3)some green in the surroundings - trees, gardens.
4) direct access to the home, a private entrance, and on the lot storage for the car.
5) convenience to shopping, work, education.

For many reasons people have to compromise their desires. But their desires and the goals for living areas generally have remained surprisingly constant over a long period of years.(

(Since Jefferson and the founding of the United States).

The single-family post-war housing boom does not reflect new goals; it indicates only that in recent decades long-standing goals have become more achievable.

II. THE CHARACTER OF LIVING AREAS

Living areas consist of homes and facilities serving the activities associated with family life - school,church,local shopping,etc. Although human needs are relatively uniform, the living areas in which these needs are met are extremely varied.

The analysis of living areas can be broken down into 1) external elements - the location of living areas and thier relation to the surroundings, and 2) the internal components and their relation to one another.

The character of lving areas is shaped by any or all of the following elements:

<u>External elements</u>:

- Access to living area - (through park or industry?)
  - Mode of access
- Size of living area
- Proximity to major external facilities or physical features.
  - (Harvard-Cambridge; the markets-North End; the sea-South Boston.)

<u>Internal elements</u>:

- Density
- Land coverage
- Vegetation
- Use of outdoor space
- Topography
- Building type-(especially shared or private entrance)
- Age of buildings
- Condition of buildings
- Utilization of buildings (occupied of vacant)

Internal elements (cont.)

Occupants
- Income-(affects maintenance, need for public facilities)
- Household size and composition
- Living habits

Relation of residential and non-residential uses within living area
Street pattern
Utilization of streets
Maintenance of public facilities
ETC.

Many of these lements are related or dependent upon one another. By controlling a few, public policy can exert considerable influence on the character of living areas. The major elements subject to public control are:

1) the provision of transportation facilities
   This in turn will affect:
   - location and density
   - type of occupants
   - street pattern

2) the provision of community facilities and utilities
   This affects:
   - density and dwelling type
   - utilization of buildings, maintenance of property values
   - type of occupants

3) location of living area
   This affects:
   - size
   - proximity to enternal facilities
   - access to living area

4) density
   This affects:
   - building type
   - land coverage
   - vegetation
   - use of outdoor space

This plan for living areas in metropolitan Boston is concerned primarily with density. Transportation facilities, utilities, and community facilities are being considered in separate studies.

Location has been considered only in gross terms since it depends to a large extent on detailed considerations which were beyond the scope of this study (e.g. buildable land, nuisance of adjacent industry, etc.)

SECTION III. THE PATTERN OF LIVING AREAS

A. The Historical Development of Patterns in Living Areas

Living areas constitute 40% of the land area of the metropolitan area; but they account for over 90% of the total built up land, excluding airports, open space, and railroads.[2] Although acreage in living areas is rapidly expanding - 17% in the last decade to accommodate a 5.5% gain in population - , the major share of the living area in 1980 will still consist of what x exists today.

What is the existing pattern of living areas in metropolitan Boston ?

The existing pattern is an accumulation of the development patterns since colonial times. Each succeeding era made an impact on the total pattern; new forms were superimposed or added onto already existing development. The following description is oversimplified in order to bring out clearly the impact of each new era.

2. The metropolitan area in this study corresponds to the Inner Band of the GBESC Area. It extends slightly beyond Route 128. See map on display in Board Room.

Originally the pattern of settlement in the Boston area was based on topography and site conditions. The early settlers followed the Waterways, the rivers and the shoreline. Subsequent development continued to be influenced by topography; but it was aslo determined by prior settlement and by t5ansportation technology. Transportation technology has had such an overriding impact on the pattern of living areas that it is reasonable to examine living areas historically on the basis of various modes of urban transportation.

1. the horse and ship era - 1800 and before
2. the railroad era - 1840-1900
3. the streetcar era - 1900-1930
4. the car era - 1930-1960
(5. the future era - 1960-1980)

(Diagrams illustrating the pattern in each era are posted in the Board Room.)

1. The horse and ship era. 1800 and before.
   Economy: agriculture and commerce
   Mode of transport: ship and horse
   Metropolitan pattern: Houses scattered along roads to hinterland. Store or church at crossroads. Concentration of development at transfer points on the sea - Quincy, Boston, Salem.
   Density: Medium at town center; then sharp decrease to overall low density. New residences constructed a t density of 10 du/net ac. in town.[3]
   Local pattern: Mixed - Little specialization. Commerce and residences combined in same structure. In the City medium density development extends roughly one mile from center.

3. "The dwelling houses in Boston have an advantage above most of the large towns on the continent with respect to garden spots. Few houses are without them..." XX The city had a homogeneous "tight little island" character. XX 1794 description in Boston: A Topographical History by W.M. Whitehill, 1959

2. Railroad Era. 1840-1900.
   Economy: industrial
   Mode of transport: railroad
   Metropolitan pattern: Industry concentrated at rail terminals and port. Workers live nearby. Outlying towns develop around stations. Sharp break between town and country.
   Density: Very high near terminals, especially xx in major cities. Overall densities quite low still. New residences constructed at 150 du/net ac. to accommodate heavy immigration in urban areas.
   Local pattern: Concentric. Industry and commerce which have become specialized have replaced residences in the heart of the city near the terminals. Residential density decreases with increasing distance from stations. Intensive development extends roughly three miles from terminals.

3. XXX Streetcar era. 1900-1930.
   Economy: industrial and commercial
   Mode of transport: transit and streetcar.
   Metropolitan pattern: Transit lines extend roughly six miles from the center of the City (Arlington, Waverly, Forest Hills). Within this six-mile zone development occurs in strips. Industry remians at rail terminals but commercial development occurs along streetcar lines.
   Density: Fairly high within the entire six-mile zone. Decreases away from the transit lines. New residences constructed at 45 du/net ac. in urban area.
   Local pattern: lineal. Frequent stops of trolleys lead to strip development. Residences often located above strip commercial.

4. Car era. 1930-1960.
   Economy: Services
   Mode of transport: car and truck
   Metropolitan pattern: Roads are ubiquitous and development is widely dispersed. Location of development no longer tied to terminals(stations or trolley stops). Old development forms have declined. Time-distance relatvley uniform in metropolitan area.

Density: Low because more land is accessible and because on the lot terminal facilities (parking spots or lots) require more space. Gross density has declined sharply in the Inner Zone of the metropolitan area and has increased substantially in the 6-12 mile zone. New residences being constructed at 5 du/net ac. in urban area.

Local pattern: Scattered uniformity. Land uses separated due to specialization and zoning; thus local pattern is fairly uniform. On large scale different uses are scattered but often juxtaposed.

(5. Future era. 1960-1980.

Economy: services

Mode of transport: car and rapid transit.

Metropolitan pattern: Highways serving industrial, major institutional, commercial development; transit serving residential. Work and living separated.

Density: New elements - low density high-rise (25 du/net ac.) in suburbs near transit; medium density low-rise (30 du/net ac.) intown. Most new residential development, however, at 2 du/net ac.

Local pattern: Planned integration. Some reintegration of shopping and institutions with residences in large package developments (West End, Prudential, Don Mills, Ontario ; Levittown, New Jersey.)

The above hypothetical descritpion is borne out by the distribution of population shown in Tables I and II, page 13 and 14. Within one mile of Dock Square (Beacon Hill, North and West Ends) density is high in the horse and ship era. No rapid means of transportation were available to carry people to the hinterland. In this central zone density falls off in the rialroad era as non-residential uses usurp the central land. The second 1-3 mile zone (Back Bay, South End, Charlestown, parts of Cambridge and Somerville,etc.) is bullt up in the rail and streetcar eras. Its density has also begun to decline as the once overcrowded tenements have been deserted. The third 3-6 mile zone (Everett, Arlington, Brookline, Dorchester,etc.) gained most in population in the

Table I

Density from Dock Square: Persons Per Acre

	Zone	1800	1860	1910	1950
1.	Within 1-mile	54.78	18.18	11.66	6.66
2.	1-3 miles	0.78	19.50	41.00	31.77
3.	3-6 miles	0.26	2.48	15.24	22.99
4.	6-12 miles	0.12	0.72	3.20	6.33
5.	beyond 12 miles	0.16	0.41	0.76	1.38
	Total Area	0.24	1.32	4.1	6.18

SOURCE: BCPB,BO

TABLE II

Population Distribution in the Boston Metropolitan Area,

1800 - 1950

Zone	Per Cent of land area, 1950	Per Cent of Population 1800	1860	1910	1950
1. Within 1 mile of Dock Square	0.16	28.4	21.0	4.6	1.7
2. 1-3 miles	3.1	4.9	25.0	24.8	16.0
3. 3-6 miles	9.7	10.8	18.3	35.3	36.1
4. 6-12 miles	32.5	17.2	18.1	25.2	33.4
5. beyond 12 miles	54.4	38.6	17.4	9.9	12.2
Total Population		86,688	474,340	1,512,295	2,256,223

SOURCE: BCPB, BO

streetcar era. Over a third of the metropolitan population lived in this zone in 1910. The fourth 6-12 mile zone has experienced the greatest increase in density in the car era. Density remains relatively low, however, because most of the development has consisted of single-family houses. The fifth zone, beyond 12 miles, contains over half of the land area in metropolitan Boston. Up to 1950 it had not experienced enough increase in population to affect the gross density very much. In fact, a larger share of the total metropolitan population resided in this outer fringe in 1800 than in 1950.

The existing land use is a composite of all the development patterns described. (See GBESC land use map). High density, 10 or more units per net residential acre, exists mainly in central Boston, in the Back Bay Fens, and out Commonwealth Avenue. Multifamily dwellings, 2-9 units/ net ac., are found throughout the 3-6 mile zone in Brighton, Watertown, Newton, Cambridge, Chelsea, Roxbury, Dorchester, etc. and also in the central areas of older surrounding towns - Brockton, Lawrence, Lowell, Quincy, Lynn, Salem. Single-family dwellings occupy most of the remaining land to the West. To the Northwest, North, and Southwest residential development is sparser. Beyond Route 128 single-family residences occur mainly in strips along roads, although chuncks of subdivisions are now developing. Small pockets of single-family residences also occur inland and along the coast - Winthrop, Hull, Nahant.

The existing relation of residential to other land use as it appears on the GBESC land use map is as follows:

to industrial: mostly median density (2-9 units/ac) adjacent - South Boston, Cambridge, Watertown. New industrial development along Rt. 128 sometimes next to single-family residential.

to commercial: same as industrial.

to open space: single-family abuts the large outlying open spaces.

to institutions: medium density near centrally located institutions; single-family near outlying institutions.

The foregoing analysis of density and development zones has been extensive because the historical patterns affect the proposals for future development. Clearly the analysis has very much simplified the real situation: zones are not concentric, rather they follow transportation corridors; development densities are not uniform in any period; the effect of a new transportation technology depends very much on the rate of growth at the time, etc. Nonetheless, there is enough validity in the analysis to make it useful in planning the future pattern.

B. The Proposed Pattern for Living Areas.

This Plan is concerned with two questions:

1. Where should living areas be located ?
2. At what densities should they be developed or redeveloped ?

The best location of living areas depends on 1) the character of the land, and on 2) the relation to other land uses.

The optimum density is a function of 1) the living preferences of the people; 2) the full utilization of public investment; and

3) the economics of development, which reflect topography, consumer preferences for items other than housing, etc.

Factors which determine future location and density vary within three broad zones in the metropolitan area.

The first Inner Zone extends to within three miles of Dock Square. The land is flat; much of it has been filled in the last 100 years. This zone is the focal point of the transit system, which is underground at this point. Density of residential and non-residential land is high. Because centrallly located land is scarce, land values also are high.

The second Middle Zone extends from 3 to 6 miles from Dock Square. Public transportation is mainly on grade. Historically rail and trolley lines followed the valleys and carried development with them. The zone is mainly on flat land, however. Mos t of the zone is developed at a medium density; and land values are medium high.

The third Outer Zone consists of the metropolitan area beyond six miles from Dock Square. The zone has many hills. The car is the major mode of transpotation; there is little public transit. The zone is developed at low densities. Much vacant land remains and land values are comparatively low. (It may be more correct to think of development costs rather than land values as distinguishing the three zones.)

In sum, the three zones are based upon differences in the historical pattern of settlement, transportation technology, and topography. 4(next page)

The proposed densities and the proposed relation of living areas to other land uses vary within each of these zones. (See diagrams posted in Board Room).

In the Inner Zone (0-3 miles) the proposed densities in dwelling units per net reisdential acre are:

high - 150 (12 story apartment blocks)
medium - 75 (6 story apartment blocks)
low - 30 (patio or 2 and 3 story row houses)

The proposed relations of residential land to other land uses in the Inner Zone are:

open space: high density near open space, preferably in free standing towers to utilize view and to allow residents away from the open space access to it. Low density where no open space is available, to create its own amenity.

industry: no residential near it.

commercial(retail and office): high or medium density near CBD. Walk to work.

institutions: high or medium density; medium for amenity needed ;by students, nurses. Walk to work or education.

Major road: none

transit stops: high or medium density.

In the Middle Zone (3-6 miles) the proposed densities in dwelling units per net reisdential acre are:

4. These differences are reflected in the trips generated per acre of land use in the three zones in Detroit:

	Residential	All uses
0-3 miles	125	909
3-6 miles	56	58
6 miles and beyond	24	28

Derived from Detroit Metropplitan Area Traffic Study, Part I,1955 Table 25.

high - 60 (6 story aparment blocks)
medium - 30 (2 and 3 story apartment and row houses)
low - 6 (single family and duplex)

The proposed relations of residential land to other land uses in the Middle Zone are:

open space: high or medium density to capitalize upon amenity.

industry: low density - less affected by nuisance; better buffer.

commercial: high or medium density; walk-in trade.

institutions: high or medium density to serve institution and utilize its services.

major road: none or low or medium density, depending on character of road.

transit stop: high or medium density to utilize facility.

In the Outer Zone (beyond six miles) the proposed densities in dwelling units per net residential acre are:

high - 20 (garden apartments)
medium - 6 (single family and duplex)
low - 2 (single family on acre lots)

The proposed relations of residential land to other land uses in the Outer Zone are:

open space: low density. Open space in the Outer Zone is generally large reservations which are often too isolated to support high density near them. Furthermore low density intrudes less upon the "unspoiled nature" purpose of reservations.

industry: low density, least affected by traffic.

commercial: low density, least affected by traffic.

institutions: medium or high density to serve the institutions and to give the residents access to the services of the institution.

major road: low density, least affected by traffic.

transit stops: high or medium density to ~~xmx~~ utilize facility.

These assumptions about the desirable relations of residential densities to other land uses in the three major zones of the metropolitan area are the basic framework upon which the Plan has been developed.

In addition to these external aspects of living areas, there are important internal aspects which are implied but not specifically indicated in a land use and density plan. The basic site requirements have already been suggested in Section I. The site must have:

a. suitable physcial characteristics
   no flooding; no topographical hazards; land suitable for use as open space; buildable soil conditions; good access.

b. available sanitary and protective services
   water, sewer, refuse, power, fire, police, communications.

c. freedom from local hazards and nuisances
   odors, noise, smoke, dust, disease, moral hazards

d. access to community facilities.

Aside from these essential characteristics of a suitable living area, the other internal aspects can assume a wide variety of forms. Although no specific recommendations have been formulated for this Plan, some of the internal aspects are noted below:

The <u>circulation system</u> of the living area must be used by the residents, for collections and deliveries, for maintenance and repair vehicles, and by protective services - police, fire.

It must connect the outside world, the community facilities, and the dwellings. It consists of streets, walkways, driveways, and parking lots. Off-street parking requires 240 square feet per car. At densities above 10 du/net ac. off-street parking is required.

The grid street pattern has some serious shortcomings for residential area:

- with look-alike houses it creates monotony
- each street potentially carries through traffic
- none of the streets have adquate capacity for major traffic flows
- there are too many intersections.

Standards have been developed in Philadelphia for the spacing of arterial (major) streets in residential areas; They should be at least a quarter of a mile apart for quietness, and a half mile apart for playground and transit access.

The relation of community facilities to the dwellings varies with density since land requirements for facilities are directly related to the number of people in the living area.[5]

The facilities in the living area should be closely connected to the activities carried on by the residents in their home life. Traditionally they include schools, churches, libraries, local social and recreational clubs, outdoor play space, conveneicne shopping, Whether the facilities are included in the living area

depends on whether the density is high enough to bring them within walking distance of the home .

The dwelling types in the living area may be classified according to:

a. the number of dwellings in the structure: 1 or 2 family, multi-family; or

b. the physical relation of the structures: detached, semi-attached, attached.

Besides height, the dwelling type affects the extent of common services - entrances, halls, outdoor space, garages. It is privacy in these items that has made many people prefer the single-family house.

Although the relative costs of dwelling types vary throughout the country, it was found that in terms of construction, operation, and maintenance - disregarding land costs - dwelling types ranked from lowest to highest cost to consumer as follows:[6]

1. row flats
2. row houses
3. semi-detached houses
4. detached houses
5. three-story walk up
6. elevator apartments.

The design of living areas has not received much attention since the work of Stein and Wright.[7] In desiging Radburn, Stein

6. Ludlow, p. 214

7. See Toward New Towns forAmericax, Clarence STein, 1951

combined several ideas: 1) the continous inner park, first used by Parker and Unwin in Hempstead Gardens; 2) the separation of pedestrian and vehicular traffic, used by Olmstead in Central Park; and 3) the superblock, which he had observed in Cambridge, Mass. Later Clarence Perry's Neighborhood Concept was superimposed on Stein's designs. Instead of the antiquated desing of most residential areas in the city with their individual parcels, high land coverage, poor side lighting, and garages occuping the small back yard, Stein created in Sunnyside and Chatham Village attractive urban living areas through the grouping of buildings, open courts, commong garages, and the other principles mentioned above.

The internal desing of living areas must vary from one part of the metropolitan area to the other. In the Inner Zone , in areas like the Back Bay where the street pattern permits the assembly of an adequate development parcel, apartments may be constructed on a lot by lot basis. On the other hand, where the street pattern is faulty in the Inner Zone, and anywhere in the Middle Zone, large-scale developments like Charlesgate or Chatham Village may take place. These are likely to utilize Stein's design ideas: to turn their back on the rest of the city; to create superblocks in which pedestrian and vehicular traffic is separated and road s are classified according to their function - access, collectors etc.; to use open space ad the internal back bone of the plan, and to turn the houses to the open space and away from the street.

In the Outer Zone development is likely to occur on individual lots and in subdivisions. Here the desing goals will be: larger lots, more space for recreational use, greater visual interest through the grouping of structures, freedom from traffic hazards, less road area, and less utility length.[8]

8. B. Kelly, The Production of HOusing, p.124.

SECTION IV. THE COMPONENTS OF LIVING AREAS

Living areas are composed of dwelling units and community facilities.

Although a detailed analysis of dwelling units in the metropolitan area must await the completion of the housing market analysis, an overall view of two important characteristics, their age and type, is presented in Table III and IV.

With respect to age, Table III shows that over half of the dwelling units in the metropolitan area are more than 40 years old; in the City, three-quarters are more than 40 years old. The City has 32% of all the du's in the metropolitan area; but it has 40% of all the du's built before 1919. Only 11% of the du's constructed in the metropolitan area in the last ten years were built in Boston.

With respect to type of dwelling unit, Table IV, the City has less than its proportionate share of one and two-family dwellings, and more than its share of multi-family dwellings. The largest number of dwellings in the City are in structures containing three and four units.

From 1950 to 1959 in the metropolitan area 77,300 new dwelling units were constructed; about 8,800 of these were in Boston. The units constructed in the metropolitan area from 1950 to 1956 were of the following type:[8]

8. 1956 National Inventory of Housing, Characteristics of the 1956 Inventory, Boston SMA, Table 1

Single family detached	60.9%
One and two family attached	3.5%
3 and four	2.1%
5 to 9	6.7%
10 to 19	25.6%
20 or more	1.0%

Further characteristics of existing residential land are shown on Table V. Residential land is the major use of all built up portions of the metropolitan area (Column 5). Average net densities range from 1.8 du/net ac. in the northwest sector of the metropolitan area to 22.7 du/net ac. in the City of Boston.

As already indicated, net residential land is only one component of living areas. Streets, schools, churches, local shopping and other community facilities compose the rest of the living area. The relation of these facilities to the residences depends partly on density. For example, in a low density area (2 du/net ac) shopping may be located outside the living area in a shopping center; in contrast, in a high density area the corner grocery store is part of the fabric of the living area. Furthermore, the land area required for community facilities is a direct function of the number of people in the living area. Typically districts in the City had the following composition:

	Low density (Ros-Hyde Park)	Medium density (Jamaica Plain)	High density (Charlestown)
residential	61 %	55 %	44 %
local facilities	9 %	15 %	26 %
streets (assumed)	30 %	30 %	30 %

On the basis of empirical evidence in the City and ratios found in Planning the Neighborhood, APHA, Table 12, it was possible to develop the following relationships:

The gross residential area constitutes 95% of the living area at densities of 1-5 du per net acre;

85% at densities of 6-12 du per net acre
60% " " " 13-29 " " " "
50% " " " 30-50 " " " "
47% " " "51 -99 " " " "
45% " " " 100-200 " " " "

On the basis of these relatonships the acreage of existing living areas could be calculated. (Table VI). There are 148,727 acres of living area; 87.5% are in residential land and 22.5% in community facilities. Living areas constitute 95.4% of all built up land (excluding airports,open space, railroads) and 40.4% of the total land area.

From 1950 to 1959 the population of the metropolitan area increased by 131,000 persons, a 5.5% gain; 77,300 new dwelling units were constructed in this period. They occupied 25,356 acres or 17% of the total living area.

By 1980 a gain of 307,000 people is anticipated in the metropolitan area. If new dwellings are constructed at the same ratio to population gain (1 du/1.7 person increase) 180,000 new dwellings will be constructed; 140,000 of these may be additional du's and 40,000 replacements. (In the City alone 30,000 du's must be demolished by 1980 to maintain the current 15% rate of dilapidation.) If the type of dwelling constructed in the next twenty years corresponds to those built from 1950-1959, then the 180,000 du's will occupy 59,000 acres of living area.

Table III. Age of Dwelling Units

Year built	Metropolitan area Number	Metropolitan area Per cent	City of Boston Number	City of Boston Per Cent	Per cent of metro units in City
1950-1959	77,300	10.9	8,882	3.8	11.4
1940-1949	51,850	7.3	11,320	4.9	21.8
1930-1939	45,460	6.4	8,562	3.7	18.8
1920-1029	113,654	16.0	29,258	12.7	25.7
before 1919	420,615	59.3	170,939	74.6	40.6
Total	708,879	100	228,961	100	32.2

Table IV

Type of Dwelling Unit

Number of Units in Structure	Metropolitan Area		City of Boston		Percent of Metro
	Number	Percent	No.	Percent	Units in City
Single-Family	254,955	35.9	24,312	10.6	9.5
One & two-family attached	172,231	24.2	49,127	21.4	28.5
Three & four	146,596	20.6	80,633	35.2	55.0
Five to nine	66,679	9.4	40,052	17.4	60.6
Ten to nineteen	34,954	4.9	13,557	5.9	38.7
Twenty & over	29,446	4.1	21,280	9.2	72.2
Total	708,879	100.0	228,961	100.0	32.2

Table V. Characteristics of Existing Residential Areas

Sector	(1) Acres Gross Residential	(2) Per Cent Single-Family	(3) Per Cent 2-9 Units	(4) Per Cent 10 or more Units	(5) Per Cent Gross Resdtl. of Built-Up*	(6) Per Cent Gross Resdtl. of Total Ac.	(7) Persons Per Net Resdtl.Ac.	(8) DU's per Net Resdtl. Acre
1. Boston	13,163	38.6	40.4	20.9	61.1	43.3	72.4	22.7
2. Central	30,164	39.3	51.0	9.6	67.0	70.4	59.3	17.8
3. NE	13,551	84.6	15.4	-	82.5	40.2	21.8	6.7
4. N	14,498	97.0	3.0	-	87.9	38.9	12.7	3.6
5. NW	8,971	97.7	2.2	-	85.6	20.6	7.3	1.8
6. W	19,096	92.1	7.7	0.2	79.7	40.3	15.5	4.2
7. SW	7,372	95.2	4.8	-	84.2	24.5	9.9	2.9
8. S	6,758	99.3	0.7	-	92.3	17.9	6.6	2.0
9. S	3,432	99.9	0.1	-	94.5	25.4	9.7	3.0
10. SE	17,553	90.8	9.2	-	73.7	32.4	15.0	4.6
Total	121,395	79.7	17.7	2.4	77.9	32.9	24.8	7.4

*Excludes airports, open space, railroads

SECTION V. THE PLAN

A. The Basis of the Plan

The Plan for living areas in metropolitan Boston shows their location and density in terms of dwlling units per net residential acre.

The Plan is based on:

1) the goals for living area (Section I)
2) the proposed pattern for living areas (Section III B)
3) topography, and its relation to density as set forth in the Open Space Plan
4) the historical pattern of development in the Boston metropolitan area (Section III A)
5) an assumed future land use pattern for non-residential uses.

The goals are reflected in the proposed patterns. For example, living areas are placed adjacent to insitutions and commercial areas for convenience and identity. High density is near transit in order to utilize that facility to capacity - economy. High density surrounds open space in the Inner Zone for amenity. Other goals will become apparent as the Plan is further described.

Topography could only be taken into account very roughly. In general an attempt was made to have low density on hilly land and high density on flat land. There are probably parts of the metropolitan area which are practically unbuildable because of cliffs, swamps, and other physical characteristics. At the scale at which this Plan was developed and with the information avaialbe, it was not possible to isolate and exclude these unbuildable areas.

The historical patterns of settlement was described in terms of transportation technology in SEction III. Since colonial times the City of Boston has been surrounded by independent towns and cities.

Each of these has a slightly different character which is generally treasured and preciously preserved by the residents. The multiplicity of towns and development policies and practices has added variety to the living areas of the metropolitan region. Many of the surrounding towns have railroads running through or near the traditional town center. If these railroad lines are converted to rpaid transit, the continuity of the town center as the focal point of the living area can be maintained. A few low-density high-rise structures can be fitted in among spacious old houses without destroying the traditional identity of the community.

The assumed future land use pattern is a composite of the existing land use and preliminayr proposals from previous staff work. It indicates industrial, institutional, and commercial areas; open spaces;major roads and transit line.s. The new transit extensions would have a speed and comfort unknown in the USA to date; they would be preferred to the automobile. Because living areas and their density are so closely related to other land uses, the future land use pattern is the frame upon which the Living Area Plan has been developed. If the relationships which have been assumed are correct, then the Living Area Plan can be altered as the plans for other land uses are modified and completed.

B. Design.

The design of the Plan is based upon the three zones which were described in Section III. Each zone has a characteristic density: high density in the Inner Zone; medium density in the Middle Zone; low density in the Outer Zone. But within each zone there are

enclaves of the next lower or higher density. (See Diagram posted in Board Room). The Inner Zone has some medium density enclaves; the Middle Zone has low and high density enclaves, and so forth. Thus this variety is introduced into the living areas of each zone. The lower densities would occur on hilltops or in the interior of living areas; in this way less people would have to travel through other peoples' living area. Also the interior of the living area, away from open space, needs lower density to create its own ameniyt.

C. Description and Capacity

The Plan evens out density in the metropolitan area; it introduces some lower density areas near the center of the region, e.g. Dorchester; and it indicates higher density in the Outer Zone along transit lines. Old cities like Salem, Lynn, Quincy have lower densities, while Reading, Wakefield, Lexington and other towns along transit lines are built up.

(Note that the "blobs" of density become gross away from the center of the metropolitan area. Everywhere they are generalized and may well include pockets of higher of lower density within them.)

Altogether the Plan is a synthesis of the goals and relationships which have been described previously.

The capacity of the Plan to accommodate people is indicated on Table VI. In the Plan the total living area is distributed as follows:

Per cent	Density: du / net residential acre				
	2	6	30	70	150
Land area	62.9	28.7	6.8	1.4	0.3
Population	32.1	34.4	23.1	8.1	2.1

Unfortunately data on the existing residential land is not refined enough to allow comparison. (See Table V)

Table VI Characteristics of Proposed Living Areas

Sector	(1) Acres in Existing Liv. Ar.	(2) Acres in Proposed Liv. Areas	(3) Absolute Change	(4) Percent Change	(5) Persons per acres of living area Existing	(6) Persons per acres of living area Proposed	(7) Proposed Capacity Existing	(8) Proposed Capacity Proposed	(9) Anticipated 1980
1. Boston	21,938	13,750	minus 8,188	minus 37.3	30.1	38.8	730,000	534,500	728,000
2. Central	45,693	31,725	minus13,968	minus 30.5	28.1	31.8	1,378,700	1,008,900	1,385,000
3. NE	16,512	27,750	+ 11,238	+ 68.0	13.1	9.6	234,500	269,100	265,000
4. N	15,488	28,100	+ 12,612	+ 81.4	9.4	9.5	148,100	267,000	205,000
5. NW	9,441	33,500	+ 24,059	+ 254.8	4.5	6.0	52,400	203,700	90,000
6. W	20,612	29,950	+ 9,338	+ 45.3	10.7	10.2	235,900	307,700	281,000
7. SW	7,758	20,300	+ 12,542	+ 161.6	7.3	10.5	58,200	213,700	91,000
8. S	7,112	30,500	+ 23,388	+ 328.8	4.8	6.9	35,300	213,100	63,000
9. S	7,050	14,650	+ 7,600	+ 107.8	3.6	7.1	26,500	105,500	38,000
10. SE	19,061	32,200	+ 13,139	+ 68.9	10.8	11.2	209,800	362,900	285,000
Total	148,727	247,775	+ 99,048	+ 66.5	15.0	11.9	2,379,400	2,951,600	2,701,000

Although the densities in the Plan may appear to be low, they are high enough to contain all the population anticipated by 1980 and beyond. (See Table VI. Note the capacity population for the City of Boston, Column 8, : 534,500)

Another check on the reasonableness of the Plan is the per cent of land in living area: 67% of the total area. Although at present only 40% of the metropolitan area is in living areas, considering the amount of the total built up land that is generally residential (Table V, Column 5), 67% of a built-up metropolitan area seems entirely reasonable.

SECTION VI. UNRESOLVED ISSUES

This Plan is a proposed density pattern. As such, it leaves many questions about housing unanswered, and, like most solutions, it raises some new questions.

The Plan has not been concerned with the quality of the existing living areas, their adequacy in terms of future demand, and the extent of need for replacement.

The Plan has not been concerned with the characteristics of the occupants of living area. It is generally recognized that density has social implications, espcially with respect to the suitability of an area for children. New policies in areas other than land use will have to be adopted if the image of the central city as the haven for the recent migrants, the minority groups, the very poor and very rich, etc. is to be altered.

Finally the Plan has not been concerned with the economics of density. It is well known that redevelopment never occurs at lower densities than the previous use without public subsidy. Is it reasonable to expect the City or Federal government to subsidize lower density in as extensive an area as is shown in Dorchester at 6 du/net ac. ? No....On the other hand,

> "Nothing gained by overcrowding. In community development it is not the first costs but the final costs that count."
> Unwin (in Stein p.18)

> "A redevelopment project over its whole life must be able to compete with other existing and future residential areas in the locality in holding its residents."
> Ludlow,p.211

> "The area that cannot compete in meeting human needs will also not be able, in the long run, to compete economically."
> Ludlow, p.113

In this Plan densities have been considered in terms of consumer preferences (goals) and desirable land use relationships. How these densities are to be achieved remains an unresolved question.

There are two other questions related to the economics of density: one is the issue of public vs private costs,and the other is the consumers" willingness to spend his income for housing. Only certain municipal costs depend on density: street, utilities, garbage collection, open space for passive recreation. Most of the other municipal services - schools, libraries, playgrounds - are related to the number of people rather than to the density of development. It would be possible to work out the private vs public costs of alternative density plans.

Against the wishes of planners, consumer expenditures for housing have been declining through the years.[9] As per cent of total consumer expenditure, housing and utilities constituted -

- 24% in 1901
- 19% in 1917-1919
- 25% in 1934
- 15% in 1950.

This does not mean an absolute decrease, of course; rather it indicates that as his income has risen, the consumer has chosen to spend it on items other than housing; i.e. recreation, transportation. Higher income families have generally spent less of their income on housing than lower income families. Also, the economic efficiency of housing becomes less important and the social desirability of housing more important as income rises.

The prognosis for the future for consumer expenditures on housing is not optimistic. The Chicago Area Transportation Study projected a 1.64 ratio increase for all expenditures by 1980, but only a 1.40 increase in housing expenditures.[10] Relative to other items, housing expenditure is going to continue to decline as incomes continue to rise. It may also be expected that the social desirability of housing will become increasingly important in the future.

All this sharpens the urgency of creating urban living areas that are desirable in terms of their density and physical pattern.

9. How American Buying Habits Change, US Dept. of Labor, 1958, p60

10. CATS, Consumer Expenditures Forecast, 1958, p.4.

H82 B

Boston. City Planning Board. Comprehensive Planning Division.
A plan for living areas in metro- e-
politan Boston.

litan

DATE	ISSUED TO